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It is noteworthy how large a number of botanists dissent from any absolute negation of the influence of the environment upon the genesis of heritable characters. Partly this may be due to a sense of the want of cogency of the argument that the insufficiency of the positive evidence hitherto adduced justifies the full negative statement. But I think it finds its real origin in the fact that in plants the generative cells are not segregated early from the somatic. In this respect they differ widely from that early segregation of germ-cells in the animal body, to which Weismann attached so much importance. The fact is that the constitution of the higher plants and of the higher animals is in this, as in many other points, radically different, and arguments from the one to the other are dangerous in the extreme. Those who interest themselves in evolutionary questions do not, I think, sufficiently realize that the utmost that can be claimed is analogy between the higher terms of the two kingdoms. Their phyletic separation certainly dates from a period prior to that of which we have any knowledge from the fossil record. Let us give full weight to this fact, as important as it is indisputable. The early definition of germ-cells in the animal body will then count for nothing in the evolutionary problem of plants. Moreover, we shall realize that the plant, with its late segregation of germ-cells, will present the better field for the inquiry whether, and how far, the environment may influence or induce divergences from type. From this point of view the widespread opinion among botanists that the environment in some sense determines the origin and nature of divergences from type in plants should command a special interest and attention.

I must now draw to a close. I have passed in review some of your more notable

plants, and pointed out how the Australasian flora, whether living or fossil, includes in unusual richness those evidences upon which the fabric of evolutionary history is being based. I have indicated how this history in certain groups is showing ever more and more evidence of parallel development, and that such development, or convergence, presses upon us the inquiry into the methods of evolutionary progress. The illustrations I have brought forward in this address clearly show how important is the positive knowledge derived from the fossils in checking or confirming our decisions. Paleophytology is to be prized not as a separate science, as, with an enthusiastic view restricted between blinkers, a recent writer has endeavored to enforce. To treat it so would be to degrade it into a mere side alley of study, instead of holding it to be the most positive line that we possess in the broad avenue of botanical phylaxis. An appreciation of such direct historical evidence is no new idea. Something of the same sort was felt by Shakespeare three centuries ago, and it remains the same to-day. Nay more:—it may lead us even to forecast future possibilities. In following our evolutionary quest in this spirit we shall find that we are indeed—

Figuring the nature of the times deceased,
The which observed, a man may prophesy
With a near aim, of the main chance of things
As yet not come to life.

(King Henry IV., Part II., Act iii, Scene i.)

F. O. BOWER

THE DECREASING BIRTH RATE OF THE GERMAN EMPIRE

DURING the 30 years following the war with France the population of Germany increased enormously while the population of France remained almost stationary. But at the beginning of the new century the birth rate in Germany began to decline and is still declining at a rapid rate. In an article in No. 18 of

the *Münchener Medizinische Wochenschrift* Dr. von Gruber gives some remarkable facts about the decreasing birth rate in Germany, which are the more interesting as the same causes are underlying a decreasing birth rate in certain classes and certain regions of the United States.

Von Gruber shows that while the number of marriages in Germany remained about the same (80 per 10,000 inhabitants) the birth rate sank from 370 in 1900 to 310 in 1910. This decrease is especially marked in the cities and industrial regions. In Berlin the number of births per 10,000 inhabitants decreased from 149 in 1876 to 93 in 1912. But not only the cities, the country districts, too, show a gradual decrease in the birth rate. Especially is this noticeable in the districts adjoining large cities. In general this decrease is more marked in regions with a predominantly Protestant population, and with regard to politics, in those election districts which send regularly a socialist member to the Reichstag.

Considering the causes of this general decline of the birth rate von Gruber thinks that it is principally due to prevention of conception. He recognizes the fact, however, that this decrease is to some extent unintentional. Many of the best families die out though children are ardently desired. The causes of this phenomenon are not fully known, but alcoholism and the venereal diseases are probably the principal underlying causes.

Of special significance is the insufficient increase of the birth rate among the intellectual classes. For the safety, progress and prosperity of any nation a sufficient number of persons who are leaders of the people is necessary. Without her great statesmen and generals, her leaders in commerce and industry, in the arts and sciences, the enormous development of modern Germany would have been impossible. Both Greece and Rome perished from a steadily decreasing birth rate of the ruling race, and it is a remarkable fact that during the decline of the Roman Empire no great statesmen and generals, no great thinkers, artists and scientists, appeared. It was a period of com-

plete stagnation. The same is true of the declining periods of Greek history.

In view of the more difficult living conditions of modern times von Gruber recognizes the right of the parents to limit the number of their children, but this limitation should not be carried so far as to endanger the safety of the state. The desire for wealth and luxury, the movement of woman's emancipation, the disappearance of a deep religious sentiment are the most destructive agencies in modern society. The destructive effects of the abandonment of old orthodox beliefs is shown by the fate of the Jewish race. Under the faithful observation of the Mosaic law the Jews maintained the strength and vigor of their race through thousands of years in the face of all opposition and persecution, but in modern times the Jews, at least so far as Germany is concerned, are threatened with extinction. They have abandoned their ancient faith, they hold the most advanced views on life, their writers are the most fanatic agitators for the overthrow of marriage and the established order of sexual relations. The chase after money, the thirst for power and pleasure, has blinded them to the fact that they are facing extinction through race suicide. These conditions are especially marked among the Jews of Berlin. From 1875 to 1910 the Jews of Berlin increased 100 per cent., but the number of Jewish births decreased during the same period 11 per cent. In 1905 the number of births per 1,000 Jewish women in the child-bearing age was only 56.8. At present their natality is only 14 per 1,000. Still less is the natality among the Jews of Bohemia and Moravia, where, according to recent statistics, it sank to 12.9 per 1,000, the lowest birth rate known among any race. This enormous decrease of births among the Jews shows that the phenomenon is not due to poverty and indigence, for the Berlin Jews are among the best situated people of that city.

A reasonable increase in population is absolutely necessary for any people to maintain its position among the nations. If the two-children system should be carried out generally,

von Gruber finds that the descendants of one million people would after 100 years only amount to 347,000 souls.

To counteract the modern tendency to race suicide von Gruber proposes (1) Improvement of the economic condition of families with many children by proper laws. (2) Limitation of the economic advantages of childlessness. (3) Suppression of those agencies which, for pecuniary gains, spread the vice of race suicide. He takes an energetic stand against those modern "reformers" who would loosen the marriage ties. He considers the modern monogamous marriage the only basis of healthy sexual relations. Freedom in marriage would become "free love" and end in general sterility. He condemns the claim of the law committee of the Federation of German Women, who maintain that "as a free person woman is the mistress over her own body and may destroy a germ which, in its initial stage, is an inseparable part of her own body." The ideal of woman's emancipation has never been more nearly approached than in Imperial Rome, where sterility was a general phenomenon.

It is nothing but just that the state bear a part of the expenses of parents with a numerous family. Parents who have three or more normal and healthy children under 14 years should be paid a monthly contribution, and if they have raised three or more children they should receive an old age pension when they have reached the age of 60 years. Besides these economic advantages von Gruber would give a father of three or more children a plural vote at all elections proportional to the number of his children. A large portion of the sums expended in the assistance of families with many children could be procured by a tax on the incomes of bachelors and parents with few or no children. Von Gruber proposes severe laws against the "propaganda for the two-children system," as well as severe penalties on criminal abortion and on the advertisement and sale of drugs and other means for the prevention of conception.

A. ALLEMANN

PATENT MEDICINES IN GREAT BRITAIN

LARGELY through the efforts of the American Medical Association and through legislation by Congress some progress has been made in the United States in limiting the dangers from the sale and use of secret medicines. The conditions are now worse in Great Britain than in this country, and in 1912 the government appointed a select committee which has just issued an abstract of its report. It finds that there is a large and increasing sale of patent and proprietary remedies and appliances and of medicated wines; that this constitutes a grave and widespread public evil and that "an intolerable state of things," requires new legislation to deal with it, rather than merely the amendment of existing laws. Legislation is recommended as follows:

1. That every medicated wine and every proprietary remedy containing more alcohol than that required for pharmacological purposes, be required to state upon the label the proportion of alcohol contained in it.
2. That the advertisement and sale (except the sale by a doctor's order) of medicines purporting to cure the following diseases be prohibited: Cancer, consumption, lupus, deafness, diabetes, paralysis, fits, epilepsy, locomotor ataxy, Bright's disease, rupture (without operation or appliance).
3. That all advertisements of remedies for diseases arising from sexual intercourse or referring to sexual weakness be prohibited.
4. That all advertisements likely to suggest that a medicine is an abortifacient be prohibited.
5. That it be a breach of the law to change the composition of a remedy without informing the Department of the proposed change.
6. That fancy names for recognized drugs be subject to regulation.
7. That the period of validity of a name used as a trade mark for a drug be limited, as in the case of patents and copyrights.
8. That it be a breach of the law to give a false trade description of any remedy, and that the following be a definition of a false trade description: "A statement, design, or device regarding any article or preparation, or the drugs or ingredients or substances contained therein, or the curative or therapeutic effect thereof, which is false or misleading in any particular." And that the onus of proof that he had reasonable ground for belief in the truth of any statement by him regard-